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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/997,665	11/26/2001	Takahiro Iijima	323-01	5728

7590

01/23/2004

Paul & Paul
2900 Two Thousand Market Street
Philadelphia, PA 19103

EXAMINER

WONG, EDNA

ART UNIT	PAPER NUMBER
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1753

DATE MAILED: 01/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/997,665

Applicant(s)

IIJIMA ET AL.

Examiner

Edna Wong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.

- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

This is in response to the Amendment dated December 8, 2003. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Response to Arguments

Specification

- I. The abstract of the disclosure is objected to.

The objection to the abstract of the disclosure has been withdrawn in view of Applicants' amendment.

- II. The disclosure has been objected to because of minor informalities.

The objection to the disclosure has been withdrawn in view of Applicants' amendment.

Claim Objections

Claims **1-2, 4 and 6** have been objected to because of minor informalities.

The objection of claims 1-2, 4 and 6 has been withdrawn in view of Applicants' amendment.

Claim Rejections - 35 USC § 112

Claims **4-5 and 7** have been rejected under 35 U.S.C. 112, second paragraph,

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as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The rejection of claims 4-5 and 7 under 35 U.S.C. 112, second paragraph, has been withdrawn in view of Applicants' amendment.

Claim Rejections - 35 USC § 103

I. Claims **1-3** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **Odaira et al.** (US Patent No. 5,333,379).

The rejection of claims 1-3 under 35 U.S.C. 103(a) as being unpatentable over **Odaira et al.** has been withdrawn in view of Applicants' amendment.

II. Claim **4** has been rejected under 35 U.S.C. 103(a) as being unpatentable over **Odaira et al.** (US Patent No. 5,333,379) as applied to claims 1-3 above, and further in view of **Tokuda et al.** (US Patent No. 5,870,289).

The rejection of claim 4 under 35 U.S.C. 103(a) as being unpatentable over **Odaira et al.** as applied to claims 1-3 above, and further in view of **Tokuda et al.** has been withdrawn in view of Applicants' amendment.

III. Claim **5** has been rejected under 35 U.S.C. 103(a) as being unpatentable over **Odaira et al.** (US Patent No. 5,333,379) as applied to claims 1-3 above, and further in view of **Koyama** (US Patent No. 6,254,758 B1).

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The rejection of claim 5 under 35 U.S.C. 103(a) as being unpatentable over Odaira et al. as applied to claims 1-3 above, and further in view of Koyama has been withdrawn in view of Applicants' amendment.

IV. Claims **6-8** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **Odaira et al.** (US Patent No. 5,333,379) in combination with **Koyama** (US Patent No. 6,254,758 B1).

The rejection of claims 6-8 under 35 U.S.C. 103(a) as being unpatentable over Odaira et al. in combination with Koyama has been withdrawn in view of Applicants' amendment.

Response to Amendment

Claim Objections

Claims **12 and 14** are objected to because of the following informalities:

Claim 12

line 4, the word "claims" should be amended to the word -- claim --.

Claim 14

line 3, the word "from" should be amended to the word -- form --.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

- I. Claims **9-13** are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 9

lines 3-4, "(a) preparing a laminated body comprising at least one resin layer and at least one wiring layer laminated on said resin layer".

Applicants' specification does not disclose preparing a laminated body comprising at least one resin layer and at least one wiring layer laminated on said resin layer.

- II. Claims **6-14** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6

line 13, it appears that the "wiring pattern" is the same as the wiring pattern recited in claim 6, line 12. However, it is unclear if it is.

line 13, it appears that the "wiring pattern and vias" are the same as the wiring

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pattern recesses and via through holes recited in claim 6, lines 12-13. However, it is unclear if they are. If they are, then it is suggested that the word -- said -- be inserted after the word "that".

line 24, it appears that the "wiring pattern" is the same as the wiring pattern recesses recited in claim 6, lines 23-24. However, it is unclear if it is.

line 24, it appears that the "wiring pattern and vias" are the same as the wiring pattern recesses and via through holes recited in claim 6, lines 23-24. However, it is unclear if they are. If they are, then it is suggested that the word -- said -- be inserted after the word "that".

Claim 9

line 14, it appears that the "wiring pattern" is the same as the wiring pattern recesses recited in claim 9, lines 13. However, it is unclear if it is.

line 14, it appears that the "wiring pattern and vias" are the same as the wiring pattern recesses and via through holes recited in claim 9, lines 13.

However, it is unclear if they are. If they are, then it is suggested that the word -- said -- be inserted after the word "that".

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Claim 12

lines 5-15, it is unclear what is the relationship between the steps of (b) forming a second resin layer with wiring pattern recesses and via through holds using a mold and (a) preparing a multi-layer wiring board which is made in accordance with the steps as defined in claim 9. Two separate wiring boards are being produced that are independent from one another.

line 14, it appears that the "wiring pattern" is the same as the wiring pattern recesses recited in claim 12, lines 13. However, it is unclear if it is.

line 14, it appears that the "wiring pattern and vias" are the same as the wiring pattern recesses and via through holes recited in claim 12, lines 13. However, it is unclear if they are. If they are, then it is suggested that the word -- said -- be inserted after the word "that".

Claim 14

lines 11-12, it appears that the "wiring pattern" is the same as the wiring pattern recesses recited in claim 14, lines 11. However, it is unclear if it is.

line 11-12, it appears that the "wiring pattern and vias" are the same as the wiring pattern recesses and via through holes recited in claim 14, lines 11. However, it is

unclear if they are. If they are, then it is suggested that the word -- said -- be inserted after the word "that".

Claim Rejections - 35 USC § 103

I. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Odaira et al.** (US Patent No. 5,333,379).

Odaira teaches a process for manufacturing a wiring board, said process comprising the following steps of:

(a) making a resin plate which has wiring pattern recesses (= the regions where conductor circuits are formed) using a pair of molds (= molding an electrical resin having a perforated three-dimensional substrate structure);

(b) coating (= chemical plating) all of the surfaces of the resin plate with a metal film (= an electrical conductive metallic material layer is formed on the surface);

(c) electroplating using said metal film as a power-supply layer over an entire surface (= unnecessary parts) of said metal film so as to fill a plated metal into said wiring plated recesses (= the regions where conductor circuits are formed); and

(d) etching said electroplated metal formed on said resin plate to remove the same except for inside regions of said wiring pattern recesses, so that said plated metal wiring pattern recesses are exposed on a surface the same as that of said resin plate, so that recesses are exposed on a surface the same as that of said resin plate (= unnecessary parts are removed by employing an etching process, from regions where

conductor circuits are formed) [col. 1, lines 15-45].

Odaira does not teach polishing said electroplated metal film.

However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process disclosed by Odaira by substituting the etching disclosed by Odaira with polishing the electroplated metal because polishing would have been doing the same endeavor of removing metal.

As to wherein the resin plate has via through holes; and wherein the electroplating fills a plated metal into said via through holes, Odaira teaches that conductor circuits are arranged on the opposite surfaces of the wiring board such they are electrically connected to each other (col. 1, lines 23-27). Thus, it appears that in order for the opposite surfaces of the wiring board to be electrically connected to each other, there would have been via through holes in the resin plate ("*perforated*") that were coated by the chemical plating and the electrical plating.

As to wherein said resin plate is formed by press-forming process using a pair of press-forming molds; and wherein said resin plate is formed by an injection molding process using a pair of injection molds, Odaira teaches molding (col. 1, line 31-36).

Press-forming and injection molding are conventional resin molding techniques in the molding art. Odaira teaches molding broadly and using these techniques would have been sufficient in doing the same endeavor of shaping the resin plate.

II. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Odaira et al.** (US Patent No. 5,333,379) as applied to claims 1-3 above, and further in view of **Tokuda et al.** (US Patent No. 5,870,289).

Odaira is as applied above and incorporated herein.

Odaira does not teach forming pads as a part of said wiring pattern formed from said exposed plated metal recesses on one surface of the resin plate to which external connecting terminals are to be attached.

However, Tokuda teaches that connecting pads **11** of the integrated circuit chip **10** are connected to the wires **21** of the wiring substrate **20** through direct through-hole connections **40** (col. 10, lines 42-47; and Fig. 1).

Thus, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process disclosed by Odaira by forming pads as a part of said wiring pattern formed from said exposed plated metal recesses on one surface of the resin plate to which external

connecting terminals are to be attached because this is conventional in the wiring board art to connect structures to the wires of the wiring substrate as taught by Tokuda (col. 10, lines 42-47; and Fig. 1).

III. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Odaira et al.** (US Patent No. 5,333,379) as applied to claims 1-3 above, and further in view of **Koyama** (US Patent No. 6,254,758 B1).

Odaira is as applied above and incorporated herein.

Odaira does not teach using said wiring board as a core substrate; and forming a resin layer on said core substrate and forming a wiring pattern on said resin layer in such a manner that said wiring pattern is connected to a wiring pattern formed on said wiring pattern recesses or to said vias of said core substrate.

However, Koyama teaches forming a multiple layer wiring board by the "buildup method" (col. 6, line 61 to col. 7, line 11).

Thus, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Odaira by using said wiring board as a core substrate; and forming a resin layer on said core substrate and forming a wiring pattern on said resin layer in such a manner that

said wiring pattern is connected to a wiring pattern formed on said wiring pattern recesses or to said vias of said core substrate because forming a multiple layer wiring board by the "buildup method" would not have only formed a conductor pattern on a one-sided and on a two-sided wiring board but would have also formed a conductor pattern on an inner layer of a multiple layer wiring board as taught by Koyama (col. 6, line 61 to col. 7, line 11; and Figs. 4 to 5(e)).

Furthermore, the repetition of steps to provide the same results is within the skill of one having ordinary skill in the art. The concept of duplication is not patentable.

IV. Claims **6-8** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Odaira et al.** (US Patent No. 5,333,379) in view of **Koyama** (US Patent No. 6,254,758 B1).

Odaira and Koyama are as applied for the same reasons as discussed above and incorporated herein.

V. Claims **9-13** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Odaira et al.** (US Patent No. 5,333,379) in view of **Koyama** (US Patent No. 6,254,758 B1).

Odaira and Koyama are as applied for the same reasons as discussed above and incorporated herein.

Odaira also teaches preparing a laminated body comprising at least one resin layer and at least one wiring layer laminated on said resin layer (= a wiring board having a three-dimensional structure with a predetermined number of conductor circuits arranged on the surface of a molded product (col. 1, lines 1-45).

Odaira also teaches forming a second resin layer with wiring pattern recesses and via through holes using a mold (steps (b) to (e) from claim 12) because the repetition of steps to provide the same results is within the skill of one having ordinary skill in the art. The concept of duplication is not patentable.

VI. Claim 14 is are rejected under 35 U.S.C. 103(a) as being unpatentable over **Odaira et al.** (US Patent No. 5,333,379).

Odaira and Koyama are as applied for the same reasons as discussed above and incorporated herein.

Conclusion

Applicants state that Odaira suggests a different method from that of the present invention, in which wiring patterns (copper plated layer 5) are formed on the surfaces of the Odaira upper and lower dies (1, 2) by means of plating resist layers (4). Odaira uses an insulating resin (6) to fill the hollow space between his dies (1, 2) so that the wiring patterns are integrated to form a wiring board. In response, Odaira also teaches a

process comprising molding an electrical resin (col. 1, lines 15-45). The disclosure of reference must be considered for what it fairly teaches one of ordinary skill in the art, pertinence of non-preferred disclosure must be reviewed in such light. *In re Meinhardt* 157 USPQ 270; and MPEP § 2123.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

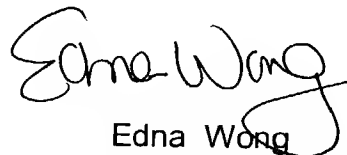
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (571) 272-1349. The examiner can normally be reached on Mon-Fri 7:30 am to 5:00 pm, alt.

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Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (572) 272-1300.

A handwritten signature in black ink, appearing to read "Edna Wong". The signature is fluid and cursive, with the first name "Edna" and last name "Wong" clearly distinguishable.

Edna Wong
Primary Examiner
Art Unit 1753

EW
January 20, 2004